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Imaging

IMPROVED DETECTION OF CARDIAC AMYLOIDOSIS USING CMR

Poster Contributions
Poster Sessions, Expo North
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Session Title: Imaging: MRI V - CMR in Hypertrophic and Infiltrative Cardiomyopathies
Abstract Category: 19. Imaging: MRI
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Background: Cardiovascular magnetic resonance (CMR) late gadolinium enhancement (LGE) imaging is used to detect cardiac amyloid (CA); however, image interpretation is very challenging due to poor image quality. Normally, the inversion time (TI) at which the blood pool nulls is shorter than that of the myocardium, but this relationship can be inverted in CA. We hypothesize that TI scout imaging of the heart will improve detection of CA.

Methods: 22 patients with suspected CA and 13 with other infiltrative cardiomyopathies referred for CMR (1.5T) were studied. TI scouts and LGE images were acquired after gadodiamide 0.15mmol/kg injection. Presence of a typical CA LGE pattern was considered diagnostic of CA. The difference between blood pool and myocardial TI (ΔTI) was determined using TI scouts. ΔTI ≤0ms was considered diagnostic of CA (figure). A clinical evaluation including tissue biopsy was used to determine the final diagnosis of CA. Diagnostic quality LGE and TI scout images were used to calculate the sensitivity and specificity.

Results: 16/35 patients had CA. CA patients had shorter ΔTI than those without (-41 ± 35 ms vs. 72 ± 16; p<0.0001). All TI scouts, but only 89% of LGE images, were of diagnostic quality. Both TI scouts and LGE had excellent sensitivity (100%/ 100%) and specificity (100%/ 95%) for detecting CA.

Conclusion: Both TI scout and LGE imaging accurately detected CA, but 11% of LGE images were of non-diagnostic image quality. TI scout images should be routinely analyzed in the evaluation of CA.